



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,187	02/19/2002	Shunpei Yamazaki	SEL 304	5420

7590 01/22/2004
COOK, ALEX, MCFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
Suite 2850
200 West Adams St.
Chicago, IL 60606

EXAMINER

ROY, SIKHA

ART UNIT PAPER NUMBER

2879

DATE MAILED: 01/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/078,187

Applicant(s)

YAMAZAKI ET AL.

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-71 is/are pending in the application.
- 4a) Of the above claim(s) 42-66 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-41 is/are allowed.
- 6) ☒ Claim(s) 1-32 and 67-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 0202. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-41,67-71 filed November 24, 2003 is acknowledged.

Claims 42-66 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, there being no allowable generic or linking claim.

Drawings

Figure 15 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2879

Claims 67-71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 67,68,69, 70 and 71 recite the limitation "semiconductor device" in claims 1,2,19, 20 and 33 respectively but there is no recitation of semiconductor device in claims 1,2,19, 20 and 33. There is insufficient antecedent basis for this limitation in these claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,2, 5-8,67,68 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,303,963 to Ohtani et al.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

Art Unit: 2879

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1 Ohtani discloses (column 24 lines 19-56, column 25 lines 1-15, 29-54 Fig. 16B) an EL display device comprising a first electrode (pixel electrode) 4027 formed over the first substrate 4010, a first insulating film 4028 formed so as to cover an end of the first electrode, a light-emitting organic compound film 4029 formed over the first electrode 4027 and in contact with a side face of the first insulating film, a second electrode 4030 formed over the light-emitting organic compound film 4029, a second insulating film (insulating film 4026 along with the top portion, not numbered in Fig. 16B) formed over the periphery of the first substrate, an adhesive layer 6004 formed on the second insulating film, a second substrate 6000 in contact with the adhesive layer and light-emitting element comprising the light-emitting organic compound film interposed between the first and second electrodes. Ohtani further discloses (column 25 lines 37,38) the first insulating film 4028 and second insulating film (insulating film 4026 along with the top portion) comprise same material.

Regarding claim 2 Ohtani discloses all the limitations same as claim 1. Additionally Ohtani discloses (Fig. 16B) the second substrate 6000 provided so as to overlap the first and second insulating films and a gap between the first substrate 4010 and second substrate 6000 is filled with an adhesive layer 6004.

Referring to claims 5 and 6 Ohtani discloses a protection layer (passivation film) 6003 covering the second electrode 4030, the first insulating film 4028 and the second insulating film (insulating film 4026 along with the top portion).

Art Unit: 2879

Regarding claims 7 and 8 Ohtani discloses first substrate and second substrate made of glass.

Regarding claims 67 and 68 Ohtani discloses (column 31 lines 29-40, Figs. 11A to 11F) that this display devices can be incorporated into an electronic equipment selected from group consisting of video camera, cellular phone, portable computers.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3,4,11,12,17 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,303,963 to Ohtani et al.

Regarding claims 3 and 4, Ohtani discloses the claimed invention except for the limitation of width of the second insulating film being between 100 to 5000 μ m. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the width of the second insulating film between 100 to 5000 μ m, since optimization of workable ranges is considered within the skill of the art.

Art Unit: 2879

Regarding claims 11 and 12, Ohtani discloses the claimed invention except for the limitation of thickness of the adhesive layer being between .05 to .5 μ m. It is to be noted that the thickness of the adhesive layer affects the viewing angle and hence the thickness of the adhesive layer must be such that lowering of light transmittance is prevented. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the thickness of the adhesive layer between .05 and .5 μ m, so that there is enhanced light transmittance with effective sealing of the display.

Regarding claims 17 and 18 Ohtani discloses the first insulating film which is of same material as the second insulating film made of resin.

Claims 17,18 differ from Ohtani in that Ohtani does not disclose the first insulating film comprising any one of polyimide resin, acrylic resin and polyamide resin film.

Ohtani discloses (column 8 lines 46-58) interlayer insulating film formed of organic resin film comprising polyimide, acryl, polyamide resins. Ohtani further discloses these organic resin films provide advantages such as simple film formation method, reduction of parasitic capacitance since relative dielectric constant is low and superior flatness.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the resin insulating film of Ohtani made of polyimide, acryl or

polyamide organic resins for providing advantages such as simple film formation method, reduction of parasitic capacitance since relative dielectric constant is low and superior flatness.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,303,963 to Ohtani et al. and further in view of U.S. Patent 6,559,594 to Fukunaga et al.

Claims 9 and 10 differs from Ohtani in that Ohtani does not disclose the gap between the first substrate and the second substrate filled with an inactive gas or nitrogen.

Fukunaga in same field of endeavor discloses (Fig. 4D column 9 lines 1-10) the gap between the first and second substrates is filled with nitrogen gas or noble gas. It is further disclosed that this material (nitrogen gas) absorbs oxygen or moisture in the space thus providing a reliable light source.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to fill the gap between the first and second substrates of Ohtani with nitrogen gas as suggested by Fukunaga for absorbing oxygen or moisture in the space and thus providing a reliable light source.

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,303,963 to Ohtani et al. and further in view of U.S. Patent 6,380,672 to Yudasaka.

Referring to claims 13-16 Ohtani fails to disclose the first and second insulating films having thickness of 1.0 to 10 μ m.

Yudasaka in analogous art of active matrix display discloses (column 12 lines 35-52) the bank (first insulating film) has a thickness of 1 to 2 μm . Yudasaka discloses that such a thick layer bank sufficiently functions as a barrier and defines the region that forms the organic semiconductive film when the film is formed by a coating process.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to select the thickness of the first and second insulating films of Ohtani of 1 to 2 μm as suggested by Yudasaka for functioning as barrier and defining the region for forming organic film in between.

Claims 19 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,559,594 to Fukunaga et al.

Regarding claim 19 Fukunaga discloses (column 4 lines 14-50 Fig. 2A) a display device comprising a first electrode (pixel electrode) 207a over a first substrate 201, a first insulating film 208 formed so as to cover an end of the first electrode, a second insulating film 215 provided on the upper face of the first insulating film, a light-emitting element comprising a light emitting organic compound film 209 interposed between the first electrode 207a and second electrode 212.

Referring to claim 19 Fukunaga discloses the claimed invention except for the limitation of the second insulating film provided in a convex manner. It would have been an obvious matter of design choice to have the second insulating film in a convex manner since the applicant has not disclosed such configuration of the second insulation film solves any stated problem or is for any particular purpose and it appears

that the invention would perform equally well with the second insulating film as suggested by Fukunaga.

Regarding claim 69 Fukunaga discloses (column 11 lines 58 through column 12 line 10 Figs. 8A-8F, 9A, 9B) this display devices can be incorporated into electronic equipment selected from group consisting of video camera, cellular phone, and portable computers.

Claims 20-27, 30-32 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,303,963 to Ohtani et al. and further in view of U.S. Patent 6,559,594 to Fukunaga et al.

Claim 20 differs from Ohtani in that Ohtani does not disclose the third insulating film provided in a convex manner on the upper face of the first insulating film.

Fukunaga discloses (Figs. 2, 6) an insulating film 215 provided on the upper face of the first insulating film 208. It is further disclosed that this insulating film acts as a spacer between the substrate provided in opposition to the element-forming substrate.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include the third insulating film on the upper face of the first insulating film of Ohtani as taught by Fukunaga for providing spacers between the two opposing substrates.

Referring to claim 20 Ohtani and Fukunaga disclose the claimed invention except for the limitation of the third insulating film provided in a convex manner. It would have been an obvious matter of design choice to have the third insulating film in a convex manner since the applicant has not disclosed such configuration of the third insulation

film solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the third insulating film as suggested by Fukunaga.

Regarding claim 21 Ohtani discloses the first insulating film and the second insulating film comprise same material.

Claim 22 essentially recites the same limitation as of claim 3 and hence is rejected for the same reason.

Regarding claim 23 Ohtani and Fukunaga disclose a protection layer (passivation film) covering the second electrode, first, second and third insulating films.

Regarding claim 24 Ohtani discloses in Fig. 16B the protective layer 6003 is in contact with external input terminal (wiring 4016).

Regarding claim 25 Ohtani discloses the first and second substrates comprise glass.

Regarding claim 26 Fukunaga discloses the gap between the first and second substrates filled with nitrogen gas.

Claim 27 recites the same limitation as of claim 11 and hence is rejected for the same reason.

Regarding claim 30 Fukunaga discloses (column 4 lines 51-53) that the third insulating film (spacer made of resin) has thickness between 1 and 3 μm .

Regarding claims 31,32 Ohtani does not disclose the second insulating film comprising any one of polyimide resin, acrylic resin and polyamide resin film.

Art Unit: 2879

Ohtani discloses (column 8 lines 46-58) interlayer insulating film formed of organic resin film comprising polyimide, acryl, polyamide resins. Ohtani further discloses these organic resin films provide advantages such as simple film formation method, reduction of parasitic capacitance since relative dielectric constant is low and superior flatness.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the resin of second insulating film of Ohtani made of polyimide, acryl or polyamide organic resins for providing advantages such as simple film formation method, reduction of parasitic capacitance since relative dielectric constant is low and superior flatness.

Claim 32 recites the same limitation as of claim 31 and hence is rejected for the same reason.

Regarding claim 70 Fukunaga discloses (column 11 lines 58 through column 12 line 10 Figs. 8A-8F, 9A,9B) this display devices can be incorporated into electronic equipment selected from group consisting of video camera, cellular phone, and portable computers.

Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,303,963 to Ohtani et al. and U.S. Patent 6,559,594 to Fukunaga et al. and further in view of U.S. Patent 6,380,672 to Yudasaka.

Claims 28 and 29 essentially recite the same limitations as of claims 13 and 15 respectively and hence are rejected for the same reason (see rejection of claims 13,15).

Allowable Subject Matter

Claims 33-41 allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Regarding claim 33, the references of the Prior Art of record fails to teach or suggest a display device with the combination of the limitations as set forth in claim 33, and specifically comprising the limitation of third insulating film provided along the second insulating film and interposed between the first and second insulating films.

Regarding claims 34-41, claims 34-41 are allowable for the reasons given in claim 33 because of their dependency status from claim 33.

Claim 71 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,664,732 to Yamazaki et al. discloses light emitting device with structure for reducing concentration of oxygen and degradation of electrode materials.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.


Art Unit: 2879

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

S.R.

Sikha Roy
Patent Examiner
Art Unit 2879


VIP PATEL
PRIMARY EXAMINER